

METHODS AND APPARATUS FOR ELECTROCHEMICAL-MECHANICAL  
PROCESSING OF MICROELECTRONIC WORKPIECES

ABSTRACT OF THE DISCLOSURE

Methods and apparatuses for electrochemical-mechanical processing of microelectronic workpieces. One embodiment of an electrochemical processing apparatus in accordance with the invention comprises a workpiece holder configured to receive a microelectronic workpiece, a workpiece electrode, a first remote electrode, and a second remote electrode. The workpiece electrode is configured to contact a processing side of the workpiece when the workpiece is received in the workpiece holder. The first and second remote electrodes are spaced apart from the workpiece holder. The apparatus can also include an AC power supply, a DC power supply, and a switching assembly. The switching assembly is coupled to the workpiece electrode, the first remote electrode, the second remote electrode, the AC power supply, and the DC power supply. In operation, the switching assembly couples the AC power supply and/or the DC power supply to the workpiece electrode, the first remote electrode, and/or the second remote electrode for plating, deplating and/or mechanically removing material.